Illinois Division of the Izaak Walton League ~ Illinois Council of Trout Unlimited
National Wildlife Federation ~ Natural Resources Defense Council
Prairie Rivers Network

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STATE OF ILLINOIS
Pollution Control Board
PC 6315

September 20, 2006

Office of the Clerk
Illinois Pollution Control Board
100 West Randolph
Chicago, IL 60601

Re: Comments on Proposed New 35 ILL. ADM. CODE 225, Control of Emissions from Large Combustion Sources (Mercury); R06-25

Dear Honorable Members of the Board;

The undersigned organizations wish to express our support for the proposed rule filed with the Illinois Pollution Control Board by the Illinois Environmental Protection Agency, as amended and including the Ameren and Dynegy proposals ("the rule"). We believe this rule is necessary to protect the health of the citizens of Illinois, as well as the health of our fish and wildlife populations, and is both technologically feasible and cost effective.

First and foremost, adoption of this rule is critical to protecting the health of Illinois citizens, especially our children. Every year, thousands of pounds of mercury pollution are emitted by coal fired power plants in Illinois. Many experts have submitted comments to the Board that detail the health impacts of mercury, but in short, it is a neurotoxin that passes through the placenta and poisons fetal brain development. Every day, thousands of developing fetuses, newborns and young children are exposed to mercury when pregnant and nursing women eat contaminated fish, or children eat fish themselves. Six to ten percent of women of childbearing age in the U.S. are estimated to have mercury levels high enough to put their developing children at increased risk for developmental problems from mercury poisoning. That translates to more than 100,000 women of childbearing age in Illinois whose blood mercury levels may exceed the federal recommended limit.

Further, coal fired power plants in Illinois have resulted in severe mercury hot spots in some areas of the state. The southern Great Lakes experience one of the highest deposition rates in the U.S. In this region, local and regional sources are the main cause of elevated mercury concentrations, with the great majority of mercury contamination coming from coal fired powers plants. In fact, coal plants produce 71% of the mercury pollution in Illinois and 60% in the Great Lakes states as a whole.

As a result, fish in Lake Michigan and all Illinois waterways are contaminated with mercury. So much so, that the Illinois Department of Public Health has issued "fish advisories" warning sensitive populations – and particularly pregnant women, women of childbearing age and children – to limit their consumption of certain species of predator fish from every lake, river and stream in the State.[1]

At the same time, mercury in fish is not just a threat to the health of those who consume it. There is mounting evidence that mercury levels in fish can affect their ability to reproduce, as well as survive, endangering the health of fish populations themselves. Recent research has documented mercury effects on fish (at what could be considered more typical environmental exposure levels) that include lower reproductive success due to decreased spawning and increased embryo mortality[2]; altered sex hormones; and increased vulnerability because of adverse effects on development and difficulty schooling.[3] Death has occurred when exposure to particularly high levels of mercury occurs[4]. Of all freshwater fish species studied, walleye (a popular Great Lakes sport fish) on average have some of the highest mercury levels documented. Studies in the Great Lakes have found that the walleye have a high energetic rate and consume more fish and therefore more mercury compared to other species of predator fish. These elevated mercury levels have been shown to reduce juvenile growth rates.[5]

Scientists have also found high levels of mercury in yellow perch in the Great Lakes which is of concern given the importance of these fish as prey for many other species of fish and wildlife[6]. Studies have also shown that elevated levels of mercury in largemouth bass—another popular sport fish in Illinois and an important food source for many species of wildlife—have altered hormone profiles, indicating that mercury may be affecting the health of these fish.[7]

Much research has been done on the impacts of mercury on wildlife species as well. Studies have shown that many species of birds that live in and along rivers, lakes and wetlands and feed on fish or other aquatic prey also accumulate mercury in their systems with serious implications for their health. Documented impacts of elevated mercury levels in birds include lower reproductive success due to fewer smaller eggs, lower hatch rates, altered chick behavior and lower survival rates, and decreased nest attendance[8]; behavior abnormalities; and neurological and physiological problems such as tremors, difficulty flying, walking and standing, reduced feeding and weight loss, wing and leg weakness, spinal cord degeneration, and disrupted hormone levels.[9] A wide range of birds around the country, including bald eagles, egrets and terns, have been found to have elevated levels of mercury, and loons tested in the Great Lakes and elsewhere have often been found to have very high mercury levels because of their long lives and their diets made up largely of fish.[10]

Mercury effects are not limited to fish and shore birds, however. This pollutant is also impacting many other species of wildlife including mammals such as mink, bats and river otters—the latter being of particular concern in Illinois where endangered river otters are beginning to make a come back in the wild. The effects on mammals range from physiological problems such as impaired sensory and motor skills, to reproductive problems.[11] Effects, which we will not detail here, have also been noted in amphibians and reptiles, songbirds, and marine life.

Healthy fish and wildlife populations play an important role in the Illinois economy, The most recent survey conducted by the US Fish and Wildlife Service indicates that more than 4.5 million people participated in wildlife-associated recreation activities in Illinois in 2001, including fishing, hunting, and bird watching. Expenditures for these activities in just one year included \$595 million for fishing, \$450 million for hunting, and \$814 million for wildlife watching (defined as observing, feeding, and photographing wildlife).[12] Given these important benefits to our economy, it makes sense to eliminate a source of pollution that could have significant negative impacts on a wide range of fish and wildlife in the state.

By regulating the leading source of mercury pollution in Illinois – coal fired power plants – we can reduce mercury exposure and the resulting health effects of that exposure for humans and fish and wildlife. Studies show a direct relationship between reducing mercury deposition and reducing mercury levels in fish and conclude that reducing emissions of mercury lowers mercury concentrations in fish, regardless of contributions from natural or foreign sources. In a 2002 study in Wisconsin for example, researchers correlated a decrease in atmospheric mercury loading into a Wisconsin lake with a 30% reduction in fish tissue mercury concentrations after only six years.[13] Another study in Florida showed that a reduction in local atmospheric mercury emissions led to a decline of more than 80% of mercury contamination in fish and wildlife.[14] Reducing mercury pollution and deposition in Illinois would likely have similar benefits, and thereby reduce the risks for human exposure and the associated public health impacts, as well as the risks for fish and wildlife populations.

While federal rules have been adopted by the Bush administration to regulate mercury emissions, they are inadequate to address the problem of mercury contamination in Illinois. Not only are the federal rules less stringent in their requirements for reducing levels of mercury emissions despite the availability of technology to achieve greater reductions, but the rules will also perpetuate mercury hot spots like those in Illinois by allowing coal plants to continue using older technology and also purchase the right to continue polluting at high levels rather than installing equipment to clean up their plants and protect our health and environment. The Illinois rule is needed to provide those protections that the federal rules lack.

The Illinois rule as drafted, including amendments and Ameren's and Dynegy's proposals, is sound and will be effective. First, states such as Georgia, Maryland, Massachusetts, Michigan, Minnesota, New Jersey and Pennsylvania, among others, have adopted or initiated proposals that would go beyond the federal rules and require mercury reductions from power plants similar to those in the Illinois proposed rule, demonstrating that this rule is reasonable and the bases for it are sound.

Second, the IEPA and proponents made the necessary showing at the hearings and in filings that the rule is both technically feasible and economically reasonable. Specifically, the technology for controlling mercury in accordance with the requirements of the rule is readily available. Activated carbon injection ("ACI"), with brominated or halogenated sorbents where appropriate, has been shown to achieve 95-percent capture rates in short-term tests for all ranks of coal burned in Illinois. Where 90% is not achievable with ACI alone, other pollution control options can be used to achieve 90%, including controls for other pollutants that provide additional mercury reductions.

The technology is also economically reasonable. The reductions required by the proposed rule could be achieved while costing Illinois residential consumers only $0.69 more per month, on average. Commercial businesses would pay about $5.82 more on average, while the average industrial bill would increase $305.47 monthly. The cost of ACI per unit is less than one million dollars.

Finally, there is sufficient flexibility in the rule for operators to choose a compliance pathway that is appropriate for them in terms of both means and timing of achieving the necessary reductions. The flexibility built into the rule includes: 1) the initial averaging period, 2) the output based standard, 3) the temporary technology-based standard, and 4) Ameren and Dynegy's proposed multi-pollutant standard. Moreover, Ameren and Dynegy's support for the rule demonstrates that facilities within the state of Illinois can achieve the required reductions contained in the proposed rule in a cost-effective manner. In fact, Dynegy has already committed, as part of a recent settlement agreement, to installing this equipment at its Oakwood plant by 2007 with a goal of at least 90% reduction in mercury emissions. Clearly, they believe the reductions proposed in the rule are attainable.

For all of these reasons, our organizations support the proposed rule, believe it is necessary to protect public health and the environment in Illinois, and encourage the Board to vote in favor of it.

Sincerely,

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the Izaak Walton League

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Andy Buchsbaum, Director
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[1] Illinois Department of Public Health, Sport Fish Consumption Advisory, 2006.

[2] Drevnick, PE and Sandheinrich, MB. 2003. Effects of Dietary Methylmercury on Reproductive Endocrinology of Fathead Minnows. Environmental Science and Technology, 37:4390-4396.

Hammerschmidt, CR, Sandheinrich, MB, Wiener, JG, and Rada, JG. 2002. Effects of Dietary Methylmercury on Reproduction of Fathead Minnows, Environmental Science and Technology 36:877-883.

Matta, MB, Linse, J, Cairncross, C, Francendese, L, and Kocan, RM. 2001. Reproductive and transgenerational effects of methylmercury or aroclor 1268 on Fundulus heteroclitus. Environmental Toxicology 20:327-335.

[3] Dawson MA. 1982. Effects of Long-Term Mercury Exposure on Hematology of Striped Bass, Morone saxatilis. Fishery Bulletin 80:389-392.

Hara, TJ, Law, YMC, and Macdonald, S. 1976. Effects of mercury and copper on the olfactory response in rainbow trout, Salmo gairdneri. Journal of the Fisheries Research Board of Canada 33:1568-1573.

Webber, HM and Haines, TA. 2003. Mercury effects on predator avoidance of behavior of forage fish, golden shiner. Environmental Toxicology and Chemistry 22:1556-1561.

[4] Matta et al, 2001.

[5] Mathers, RA and Johansen, PH. 1985. The effects of feeding ecology on mercury accumulation in walleye and pike in Lake Simcoe. Canadian Journal of Zoology 63:2006-2012.

Friedmann, AS, Watzin, MC, Brinck-Johnsen, T, and Leiter, JC. 1996. Low levels of dietary mercury inhibit growth and gonadal development in juvenile walleye. Aquatic Toxicology 35:265-278.

[6] Kamman, NC et al. 2005. Mercury in freshwater fish of northeast North America – a geographic perspective based on fish tissue monitoring data bases. Ecotoxicology 14:163-180.

[7] Friedmann, AS, Costain, EK, MacLatchey, DL, Stanley, W, and Washuta, EJ. 2002. Effect of mercury on general and reproductive health of largemouth bass from three lakes in New Jersey. Ecotoxicology and Environmental Safety 52:117-122.
Kamman et al. 2005.

[8] DeSorbo, CR and Evers, DC. 2006. Evaluating exposure of Maine's Bald Eagle population to mercury: Assessing impacts on productivity and spatial exposure patterns. Erpot BRI 2006-02. Biodiversity Research Institute, Gorham, Maine.

Evers, DC, Taylor, KM, Major, A, Taylor, RJ, Poppenga, RH, and Scheuhammer, AM. 2003. Common loon eggs as indicators of methylmercury availability in North America. Ecotoxicology 12:69-81.

Frederick, PC, Hylton, BA, Heath, JA, and Spalding, MG. 2004. An historical record of mercury contamination in southern Florida as inferred from avian feather tissue. Environmental Toxicology and Chemistry 23:1474-1478.

Schwarzbach, SE, Albertson, JD, and Thomas, CM. 2006. Effects of predation, flooding and contamination on reproductive success of California clapper rails in San Francisco Bay. Auk 123:45-60.

[9] Heath, JA and Frederick, PC. 2005. Relationships among mercury concentrations, hormones, and nesting effort of White Ibises in the Florida Everglades. Auk 122: 255-267.

Spalding, MG et al. 2000. Histologic, neurologic, and immunologic effects of methylmercury in captive Great Egrets. Journal of Wildlife Diseases 36:423-435.

[10] Evers, DC, Kaplan, JD, Meyer, MW, Reaman, PS, Major, A, Burgess, N, and Braselton, WE. 1998. Bioavailabilty of environmental mercury measured in Common Loon feathers and blood across North America. Environmental Toxicology and Chemistry 17:173-183.

Meyers, MW, Evers, DC, Hartigan, JJ, and Rasmussen, PS. 1998. Patterns of common look mercury exposure, reproduction, and survival in Wisconsin. Environmental Toxicology and Chemistry 17:184-190.

Scheuhammer, AM, Atchison, CA, Wong, AHK, and Evers, DC. 1998. Mercury exposure in breeding common looks in Central Ontario, Canada. Environmental Toxicology and Chemistry 17:191-196.

Scheuhammer, AM, Perrault, JA and Bond, DE. 2001. Mercury, Methylmercury, and Selenium Concentrations in Eggs of Common Loons from Canada. Environmental Monitoring and Assessment 72:79-94.

Evers et al. 2003 and 2005.

[11] Basu, N, Klenavic, K, Gamberg, M, O'Brien, M., Evans, D, Scheuhammer, AM, and Chan, HM. 2005a Effects of mercury on neurochemical receptor-binding characteristics in wild mink. Environmental Toxicology and Chemistry 24:1444-1450.

Basu, N, Scheuhammer, A, Grochowina, N, Kelnavic, K, Evans, D., O'Brien, M, and Chan, HM. 2005b. Effects of mercury on neurochemical receptors in wild river otters. Environmental Science and Toxicology 39:3585-3591.

Mierle, G, Addison, EM, MacDonald, KS and Joachim, DG. 2002. Mercury levels in tissues of otters from Ontario, Canada: Variation in age, sex, and location. Environmental Toxicology and Chemistry 19:3044-3051.

Facemire, CF, Gross, TS, and Guillette, LJ. 1995. Reproductive impairment in Florida panthers: nature or nurture? Environmental Health Perspectives 103 Suppl.4:79-86.

[12] US Fish and Wildlife Service. 2001. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

[13] Hrabik, TR and Watras, CJ. 2002. Recent declines in mercury concentrations in a freshwater fishery: Isolating the effects of de-acidification and decreased atmospheric mercury deposition in Little Rock Lake. The Science of the Total Environment 297.1-3:229-37.

[14] Florida Department of Environmental Protection. Integrating Atmospheric Mercury Deposition with Aquatic Cycling in Southern Florida: An Approach for Conducting a Total Maximum Daily Load Analysis for an Atmospherically Derived Pollutant, (October 2002, Revised 2003) 88-99.